Recurrence Relation

T(n) = 3 \* T(n/2) + O(n)

Time Complexity

T(n) = 3 \* T(n/2) + O(n)

= 3 \* (3 \* T(n/4) + O(n/2)) + O(n)

= 9 \* T(n/4) + 3 \* O(n/2) + O(n)

= 9 \* (3 \* T(n/8) + O(n/4)) + 3 \* O(n/2) + O(n)

= 27 \* T(n/8) + 9 \* O(n/4) + 3 \* O(n/2) + O(n)

= ...

= (3^k) \* T(n/(2^k)) + (3^(k-1)) \* O(n/(2^(k-1))) + ... + 3 \* O(n/2) + O(n)